What is claimed is:

1. A method comprising a plurality of activities comprising:

providing a solution comprising water and a dispersion of solid particles comprising a polymer comprising at least one hydrophobic substituent and at least one hydrophilic substituent; and

coating at least a portion of a surface of a plant with the solution.

2. The method of claim 1, further comprising forming the particles from a polymerizable monomer.

3. The method of claim 1, further comprising forming the particles from a polymerizable water soluble monomer.

4. The method of claim 1, further comprising forming the particles from a polymerizable hydrophobic monomer.

5. The method of claim 1, further comprising forming the particles from a polymerizable hydrophilic monomer.

6. The method of claim 1, further comprising polymerizing at least one hydrophobic monomer.

7. The method of claim 1, further comprising polymerizing at least one hydrophilic monomer.

8. The method of claim 1, further comprising polymerizing at least one water soluble monomer.

9. The method of claim 1, further comprising polymerizing at least one water soluble monomer with a hydrophobic monomer.

10. The method of claim 1, further comprising polymerizing at least one hydrophilic monomer with a hydrophobic monomer.

11. The method of claim 1, further comprising polymerizing acrylic acid and acrylamide.

12. The method of claim 1, further comprising polymerizing methacrylamide.

13. The method of claim 1, further comprising polymerizing NIPAM (N-isopropylacrylamide).

14. The method of claim 1, further comprising polymerizing NIPAM (N-isopropylacrylamide) with a hydrophobic monomer to form the particles.

15. The method of claim 1, wherein the particles are nanoparticles.

16. The method of claim 1, wherein each of the particles has a molecular weight of from about 500,000 to about 50,000,000.

17. The method of claim 1, wherein the particles have an average diameter of from about 2 nanometers to about 1000 nanometers.

18. The method of claim 1, wherein the particles have an average diameter of from about 200 nanometers to about 500 nanometers.

19. The method of claim 1, wherein the particles have an average diameter of from about 2 nanometers to about 200 nanometers.

20. The method of claim 1, wherein the particles have an average diameter of less than about 1000 nanometers.

21. The method of claim 1, wherein the particles have an average diameter of less than about 500 nanometers.

22. The method of claim 1, wherein the particles have an average diameter of less than about 200 nanometers.

23. The method of claim 1, wherein each of the particles comprises an internally crosslinked copolymer.

24. The method of claim 1, wherein each of the particles comprises an internally crosslinked polymer.

25. The method of claim 1, wherein each of the particles comprises a mixture of an internally crosslinked polymer and an internally uncrosslinked polymer.

26. The method of claim 1, wherein each of the particles comprises an uncrosslinked copolymer.

27. The method of claim 1, wherein each of the particles comprises an uncrosslinked polymer.

28. The method of claim 1, wherein each of the particles comprises polyNIPAM.

29. The method of claim 1, wherein the particles comprise polyNIPAM copolymers.

30. The method of claim 1, wherein the particles release heat over a range of dropping ambient temperatures from at least about 4.4 degrees C to about –6.7 degrees C.

31. The method of claim 1, wherein the particles release heat over a range of dropping ambient temperatures from at least about 1.7 degrees C to about –4.0 degrees C.

32. The method of claim 1, wherein the particles release heat over a range of dropping ambient temperatures from at least about 1.1 degrees C to about –1.1 degrees C.

33. The method of claim 1, wherein the particles release heat over a range of dropping ambient temperatures from at least about 0.56 degrees C to about -0.056 degrees C.

34. The method of claim 1, wherein the particles release heat over a range of dropping ambient temperatures beginning at about 4.4 degrees C.

35. The method of claim 1, wherein the particles release heat over a range of dropping ambient temperatures beginning at about 2.2 degrees C.

36. The method of claim 1, wherein the particles release heat over a range of dropping ambient temperatures beginning at about 1.1 degrees C.

37. The method of claim 1, wherein the particles release heat over a range of dropping ambient temperatures beginning at about 0 degrees C.

38. The method of claim 1, wherein the particles release heat over a range of dropping ambient temperatures beginning at about –1.1 degrees C.

39. The method of claim 1, wherein the particles release heat over a range of dropping ambient temperatures beginning at about –2.2 degrees C.

40. The method of claim 1, wherein the particles release heat over a range of dropping ambient temperatures beginning at about –3.3 degrees C.

41. The method of claim 1, wherein the solution further comprises one or more components selected from micronutrients, macronutrients, pesticides, insecticides, herbicides, rodenticides, fungicides, biocides, plant growth regulators, fertilizers, microbes, soil additives, adhesion promoting-agents, surfactants, and freezing point modifiers.

42. The method of claim 1, further comprising spraying the solution toward the surface of the plant.

43. The method of claim 1, further comprising coating at least a portion of the plant with a composition comprising a solution of hydrated polymer gel.

44. The method of claim 1, further comprising coating at least a portion of the plant with a composition comprising a foam comprising hydrated polymer gel.

45. The method of claim 1, further comprising coating at least a portion of the plant with a foam comprising air bubbles having a diameter in the range of from about 10 microns to about 100 microns.

46. The method of claim 1, further comprising applying to at least a portion of the plant a composition comprising water droplets coated with hydrated polymer gel.

47. The method of claim 1, further comprising applying to at least a portion of the plant a composition that releases heat over a range of dropping ambient temperatures beginning at about 1.7 degrees C.

48. The method of claim 1, further comprising applying to at least a portion of the plant a composition comprising water droplets coated with hydrated polymer gel comprising a hydrolyzed polymer.

49. The method of claim 1, further comprising applying to at least a portion of the plant a composition comprising water droplets coated with hydrated polymer gel comprising a hydrolyzed polyacrylonitrile.

50. The method of claim 1, further comprising applying to at least a portion of the plant a composition comprising water droplets coated with hydrated polymer gel comprising a hydrolyzed polyacrylonitrile comprising acrylic acid and acrylamide moieties.

51. The method of claim 1, further comprising applying to at least a portion of the plant a composition comprising water droplets coated with hydrated polymer gel comprising an uncrosslinked hydrolyzed polyacrylonitrile.

52. The method of claim 1, further comprising applying to at least a portion of the plant a composition comprising water droplets coated with hydrated polymer gel comprising a hydrolyzed fibrous protein.

53. The method of claim 1, further comprising applying to at least a portion of the plant a composition comprising water droplets coated with hydrated polymer gel

comprising a hydrolyzed fibrous protein comprising amino acid and acrylamide moieties.

54. The method of claim 1, further comprising applying to at least a portion of the plant a composition comprising water droplets coated with hydrated polymer gel comprising a hydrolyzed fibrous protein selected from hydrolyzed fibronectin, hydrolyzed fibrin, and hydrolyzed elastin.

55. The method of claim 1, further comprising applying to at least a portion of the plant a composition comprising one or more components selected from micronutrients, macronutrients, pesticides, insecticides, herbicides, rodenticides, fungicides, biocides, plant growth regulators, fertilizers, microbes, soil additives, adhesion promoting-agents, surfactants, freezing point modifiers, and heat-releasing substances.

56. The method of claim 1, further comprising preventing damage to at least a portion of the plant.

57. The method of claim 1, further comprising preventing damage, via the solution, to at least a portion of the plant.

58. The method of claim 1, further comprising reducing damage to at least a portion of the plant.

59. The method of claim 1, further comprising reducing frost damage to at least a portion of the plant.

60. The method of claim 1, further comprising reducing drought damage to at least a portion of the plant.

61. The method of claim 1, further comprising reducing evaporation damage to at least a portion of the plant.

62. The method of claim 1, further comprising reducing impact damage to at least a portion of the plant.

63. The method of claim 1, further comprising reducing transportation damage to at least a portion of the plant.

64. The method of claim 1, further comprising reducing disease damage to at least a portion of the plant.

65. The method of claim 1, further comprising reducing pest damage to at least a portion of the plant.

66. The method of claim 1, further comprising reducing rot damage to at least a portion of the plant.

67. A method comprising a plurality of activities comprising:

providing a solution comprising water and a dispersion of solid particles comprising a polymer comprising at least one hydrophobic substituent and at least one hydrophilic substituent;

coating at least a portion of a surface with the solution; and

preventing the formation of ice on the surface.

68. A method comprising a plurality of activities comprising:

polymerizing the at least one hydrophobic substituent and at least one hydrophilic substituent to form solid nanoparticles having an average diameter of from about 11 nanometers to about 450 nanometers, the nanoparticles comprising a polymer comprising the at least one hydrophobic substituent and the at least one hydrophilic substituent; and

forming a solution comprising water and a dispersion of the solid nanoparticles.

69. A composition comprising:

an aqueous solution comprising a dispersion of solid particles comprising an internally crosslinked polymer comprising at least one hydrophobic substituent and at least one hydrophilic substituent.

70. A composition comprising:

water droplets comprising a dispersion of solid particles comprising an internally crosslinked polymer comprising at least one hydrophobic substituent and at least one hydrophilic substituent.

71. The composition of claim 70, wherein the copolymer releases heat over a range of dropping ambient temperatures beginning at about 4.4 degrees C.

72. The composition of claim 70, wherein the hydrophilic monomer is water soluble.

73. The composition of claim 70, wherein the hydrophilic monomer is NIPAM.

74. The composition of claim 70, wherein the particles are nanoparticles.

75. The composition of claim 70, wherein each of the particles has a molecular weight of from about 500,000 to about 50,000,000.

76. The composition of claim 70, wherein the particles have an average diameter of from about 2 microns to about 1000 microns.

77. The composition of claim 70, wherein the particles have an average diameter of from about 2 microns to about 500 microns.

78. The composition of claim 70, wherein the particles have an average diameter of from about 200 microns to about 500 microns.

79. The composition of claim 70, wherein the particles have an average diameter of from about 2 microns to about 200 microns.

80. The composition of claim 70, wherein the particles have an average diameter of less than about 1000 microns.

81. The composition of claim 70, wherein the particles have an average diameter of less than about 500 microns.

82. The composition of claim 70, wherein the particles have an average diameter of less than about 200 microns.

83. The composition of claim 70, wherein the water droplets are coated with a hydrated polymer gel.

84. The composition of claim 70, wherein the water droplets are coated with a hydrated polymer gel that, when applied to at least a portion of a surface of a plant, releases heat over a range of dropping ambient temperatures beginning at about 1.7 degrees C.

85. A composition comprising:

a foam comprising an aqueous solution comprising a dispersion of solid particles comprising an internally crosslinked polymer comprising at least one hydrophobic substituent and at least one hydrophilic substituent.

86. The composition of claim 85, wherein the foam comprises a hydrated polymer gel.

87. The composition of claim 85, wherein the foam comprises air bubbles.

88. The composition of claim 85, wherein the foam comprises air bubbles having a diameter in the range of from about 10 microns to about 100 microns.